

1 RECORD OF ORAL HEARING

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3 UNITED STATES PATENT AND TRADEMARK OFFICE

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6 BEFORE THE BOARD OF PATENT APPEALS

7 AND INTERFERENCES

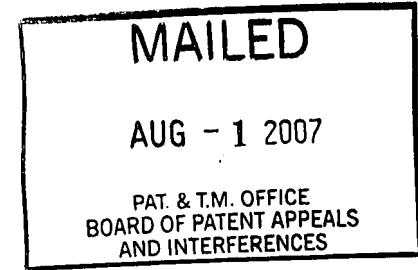
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10 Ex parte JOSEPH H. LYONS

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13 Appeal 2007-1570

14 Application 10/646,720

15 Technology Center 2800

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18 Oral Hearing Held: July 10, 2007



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22 Before JAMES D. THOMAS, JOSEPH L. DIXON, and

23 ST. JOHN COURTENAY III, *Administrative Patent Judges*.

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25 ON BEHALF OF THE APPELLANT:

26
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33 The above-entitled matter came on for hearing on Thursday, July 10,
34 2007, commencing at 9:00 a.m., at The U.S. Patent and Trademark Office,
35 600 Dulany Street, Alexandria, Virginia, before Virginia Johnson, Notary
36 Public.

1 CLERK: Appeal Number 2007-1570, Mr. Eisenberg.
2 JUDGE COURTENAY: I would like to welcome you to the Patent
3 and Trademark Board. Have you been here before?

4 MR. EISENBERG: Not in these proceedings, but --

5 JUDGE THOMAS: You have 20 minutes.

6 MR. EISENBERG: Do you mind if I use --

7 JUDGE THOMAS: We generally understand the invention.

8 MR. EISENBERG: Okay. All right.

9 JUDGE THOMAS: We have access to the claims and the whole file,
10 so --

11 MR. EISENBERG: This is just an emphasis we have on a couple of
12 the (INAUDIBLE).

13 JUDGE COURTENAY: Okay. Go ahead and use it, you prepared it.

14 MR. EISENBERG: Well, I mean, it's not necessary. Good morning.
15 My name is Jason Eisenberg and I am an attorney for the applicant. I'd first
16 like to see if you have any questions before I start.

17 JUDGE COURTENAY: In particular I would like you to address the
18 obviousness arguments in light of KSR, and the four arguments in your
19 brief. Do you have any remarks, post-KSR?

20 MR. EISENBERG: Yeah. Well, I think our main argument, even in
21 view of KSR, would be the argument that the MPP still requires that the
22 references, when combined, would operate the way the primary reference
23 ones operate, but would not render the primary reference unsatisfactory for
24 how it's supposed to operate. And we believe that. If you look at Barata and
25 the way it functions, and then you look at the Zumbach system and the
26 Carreras system, you couldn't take those nozzles and put them into Barata

1 and it would actually operate. And the reason for that is, at least for
2 Zumbach, it teaches a single stationary sensor that's using an inductive
3 measuring to determine the thickness of a coating going on a wire. And it
4 needs to know exactly where the wire is, and it needs to form an electrical
5 field and then, based on knowing where the wire is and the electrical field, it
6 deduces the thickness of the coating. Well, in our background, in paragraphs
7 4 and 5, we discuss how using an electrical sensor, a capacitive sensor, an
8 electrical based sensor, even an optical sensor produces unsatisfactory
9 measurement results. And the reason for that is that you are scanning a
10 surface that may have electrical devices on it and what we are trying to
11 determine, topography of the surface, and the electrical devices will interfere
12 with determining the topography of the surface, which is in our claim. And
13 because of that, we had to use a gas sensor. So we feel if you look at the
14 Zumbach, you can't just take that sensor and place it into the Barata system
15 and come up with a claimed invention because the Barata system won't
16 function.

17 JUDGE COURTENAY: Right. But the way I see it, the Examiner is
18 looking to that secondary reference for the elongated orifice, the sensing slit
19 or rectangular orifice. There are two secondary references you've got that --

20 MR. EISENBERG: Right. Well, we still feel that, you still need to be
21 able to say that it's going to be in the same field or it's going to operate the
22 same and we don't think -- our inventors knew about elongated orifices.
23 We're not trying to claim that no one has ever known that there is a nozzle
24 with an elongated orifice. But they didn't come up with a way to make it
25 work until they developed a certain width and length ratio of this nozzle, as
26 you can see in figure 4 versus figure 6, that, you know, you couldn't just

1 make it bigger and you couldn't just use something that was out there. They
2 had to come up with a specific nozzle that reduced the insensitivities while
3 they were scanning, so that it could scan a larger area faster, which allowed
4 to increase throughput when developing semi-conductors. So by being able
5 to do more and more area for each scan between each patterning, they're able
6 to increase the throughput, increase the efficiency, whereas just looking to
7 prior devices, no one had been able to do that in a gas gauge center, what
8 we're claiming, that had the measurement and the reference and that took the
9 type of measurements they were trying to measure and, one of the reasons
10 for that is the gas gauge sensors allow you to get down to the nanometer
11 level, which we have in paragraph 5. You need to be able to detect very
12 small changes when you're forming very small devices, and to detect those
13 small changes there are only certain types of sensors that allow you to do
14 that without interacting or interfering with the devices themselves. So they
15 tried to develop a sensor that was elongated and allowed them to do the type
16 of measuring they needed to do, because when you're forming the patterns
17 on top of patterns, when you're doing lithography, it's very small things that
18 you are forming, so you need to be able to know the intricacies of the
19 surface, so that when you're doing the next device you can adjust the
20 projection field of depth, at whatever it might be, to know that you're placing
21 the right part of the device, and the right part of the device so the device will
22 function in the end. And the Zumbach type of reference just won't be able to
23 accomplish that type of measuring. And --

24 JUDGE DIXON: But it was just the elongated nozzle that is what the
25 examiner was relying on?

26 MR. EISENBERG: Right.

1 JUDGE DIXON: But you said then, they didn't recognize the specific
2 length-to-width ratio and the size. But what in the claim goes to that?

3 MR. EISENBERG: We have dependent claims that go to the specific
4 length to width ratio of 10 to 1 or 20 to 1.

5 JUDGE DIXON: What is the independent claim (INAUDIBLE).

6 MR. EISENBERG: In the independent claim we talk about the -- 19
7 has that there is no insensitivity inherent. And that is not just obvious that
8 there won't be one by looking at Zumbach. You won't know that -- if you're
9 scanning a large surface and you want to be able to pick up as much
10 information from each scan, that there will be no insensitivity in the area,
11 which is what we tried to claim. We tried to bring as much of the spec into a
12 method claim without claiming structure so it wasn't a mixed claim, but to
13 bring it into the method claim, to say that there will be no area of
14 insensitivity so that we have all accurate information, where Zumbach and
15 Carreras never discussed the insensitivity that we are trying to overcome
16 with the elongated nozzle.

17 JUDGE DIXON: What in the language of claim 19 are you referring
18 to, no insensitivity -- eliminating low insensitivity area?

19 MR. EISENBERG: Right.

20 JUDGE DIXON: Substantially.

21 MR. EISENBERG: Substantially eliminating low sensitivity areas. I
22 mean, we assume that you can't always eliminate everything so we tried to
23 use claim language that was reasonable.

24 JUDGE COURTENAY: Would that not be an inherent property of an
25 elongated orifice or a sensing slit, as in the Zumbach reference?

26 MR. EISENBERG: I don't know that it would be inherent until you

1 got it down to positively a certain size and use it in the system to see if it
2 really worked because Zumbach is just not looking to solve that problem.
3 It's not looking to do the type of measuring we're doing, so they wouldn't
4 have looked at these electrical ones, which they're dismissing away in the
5 background, saying those won't work. We've looked at them. They're not
6 going to work. And we've come up with a way to do it in our air gauge
7 technology that will work. And, in terms of Carreras, it's not really showing
8 that at all. It's just showing different size nozzles, but Carreras itself says
9 that the only way it's going to work is if you know exactly what you're going
10 to measure, and then you form the thing to measure that, and you're only
11 measuring a volume so you know other, you know the area of it, so you're
12 measuring the volume that was formed between first and second
13 measurements. And, again, we just don't think that that would be something
14 they would look at and say, oh well, obviously if we scan a surface with this
15 nozzle, we're not going to have any insensitivity and we're going to be able
16 to scan every type of feature on the surface accurately. Whereas, Carreras
17 specifically points out, which is up here, that the only way it'll work, they
18 say it's a requirement to know -- it's a requirement to know what you're
19 going to scan in order for our sensor to work. We're going to have to form it
20 to be the size and shape of that particular area and approximately know
21 what's going to be deposited there in order for it to work. And that type of
22 nozzle cannot just be combined with an air gauge because you're scanning
23 an entire surface and you don't know what's on that surface. So you can't
24 just pick and choose the size that makes it accurate. So their sensitivity, you
25 know, in sensitive areas may go away because they know what they're going
26 to measure, and they know the size they're going to measure, but they don't

1 necessarily be able to measure an entire surface. They would lose that
2 accuracy if they tried to measure more than one size device.

3 JUDGE COURTENAY: In this case I am struck by the similarity
4 between your figure 1 and figure 1 of the Barata reference.

5 MR. EISENBERG: Barata is actually a predecessor company that
6 patented, Perkins Elmer was a company that became our company, so we
7 have multiple air gauge designs that innovate from Barata on. So Barata
8 itself we're not arguing isn't relevant. We're just saying that Barata wouldn't
9 function if you dropped these other sensors into it.

10 JUDGE COURTENAY: Well, again, I see the Examiner is looking to
11 the secondary references for the teaching and the suggestion of an elongated
12 orifice.

13 MR. EISENBERG: Right. But he still didn't find one in the air gauge
14 technology. He still had to deal with the other technologies in order to find
15 that, whereas there's other -- there's many air gauge cases out there. And we
16 feel the reason he had to do that is because it's not in there. No one thought
17 to do that up to this point, that we have seen.

18 JUDGE COURTENAY: With the differential air gauge?

19 MR. EISENBERG: Right.

20 JUDGE COURTENAY: And you are implying the teaching in these
21 secondary references?

22 MR. EISENBERG: I do not, not in the way that, I mean, the MPEP
23 still states you can't just take it and combine it if the combination of the two
24 systems aren't going to work. And --

25 JUDGE COURTENAY: Well what --in light of KSR --

26 MR. EISNEBERG: Right.

1 JUDGE COURTENAY: That still applies.

2 MR. EISENBERG: I don't think KSR takes away different cases that
3 have held that this isn't motivation to combine and this isn't motivation to
4 combine, but the MPEP states, I think, it helps to change how motivation is
5 determined and you can't use the test --

6 JUDGE COURTENAY: The MPEP is not a controlling legal
7 authority.

8 MR. EISENBERG: Right. Well, the MPEP states cases that fall
9 within this general concept of inoperability or not suitable for what it was
10 going to be used for. I don't think you can just say, well there is motivation
11 because someone has done it in another field. We talk about them doing it
12 in other fields. We talk about how those fields don't allow us to get down to
13 the level of measuring we need, which is why we're claiming specifically air
14 gauge, we're claiming the measuring to surfaces and we're scanning it and
15 doing a pressure differential, or first and second measurement, value
16 reference -- measuring value differential. I mean, we're trying to keep the
17 claims within our specific technology because we're not trying to go outside
18 and say, well no one has ever thought of doing a nozzle this way. We're just
19 trying to claim it within the air gauge system.

20 JUDGE DIXON: What in claim 19 requires that it be an air gauge?

21 MR. EISNEBERG: Claim 19 is basically a method claim, and we
22 tried not to do the mix method structure, so what we did in 19 was we called
23 it a measuring surface, and we called it a reference surface, and we talked
24 about scanning the measuring reference and then determining the difference
25 between the two values, which is what we lay out in our application as being
26 our air gauge functions. So we took the function that we laid out strictly for

1 air gauge measuring, which is all we really disclosed in our specification,
2 and we tried to pull the structure out of it, because it was a method claim,
3 and claim it as a pure method claim. And we felt that we still captured that
4 it was an air gauge by using the reference, the measuring surface, and the
5 differential measurements had to be determined in order to find the
6 topography.

7 JUDGE COURTENAY: Some of your other claims though, claims
8 39 and 46, I really don't see any difference between these claims and the
9 primary Barata reference except for this elongated nozzle orifice, right?

10 MR. EISNEBERG: Right.

11 JUDGE COURTENAY: And you're saying that there is no teaching
12 or suggestion in the secondary references the Examiner has relied upon for
13 an elongated nozzle orifice?

14 MR. EISENBERG: Not to be used in an air gauge system, which we
15 tried to limit our claims to. I mean, as we've said, we're not trying to say that
16 no one has ever thought of an elongated nozzle, but the inventor discovered
17 that, you know, the ones he had seen out there didn't work until he came up
18 with this one that did, to get to the sensitivity level he wanted, to be able to
19 measure a surface, not lose information, and be able to find a very large
20 nozzle to do that. When the prior air gauges used circular nozzles because
21 that's what they used. And, as you see in figure 6, you just lose a lot of
22 information from every scan. So then you have to do the scans either closer
23 together or you have to use smaller nozzles, and the smaller the nozzle, the
24 less surface you're doing. So you're making a less efficient system. There
25 will be less, slower throughput in that type of thing. So, I mean, it's geared
26 towards lithography and geared towards the air gauges, which are typically

1 used in lithography in these type of scans. So that's kind of where they feel
2 the discovery, the innovation, the invention is, is being able to come up with
3 one that works within an air gauge system, to come up with the level of
4 measurements they're looking for.

5 JUDGE COURTENAY: So the crux of your argument really is that
6 these are non-analogous references?

7 MR. EISENBERG: Yes.

8 JUDGE COURTENAY: Does that reasoning really still apply post
9 KSR?

10 MR. EISENBERG: Again, I think it's still -- KSR didn't take away
11 the fact that in the 103 rejection you had to have references that fell into
12 analogous art and, if you look at the field of endeavor of the claimed
13 invention, and if you look at the problem being solved by the claimed
14 invention, then it would be difficult to say that someone with a good look at
15 Zumbach, who is doing very rudimentary, just determining the thickness
16 measurement of an extrusion, and not really worried about how exacting it
17 is, and also doing a deductible using a known wire sensor spacing and then
18 measuring an electrical field being done, I mean, we don't feel that someone
19 would go into that and say, oh yeah, we can move that into the air gauge
20 technology. That's the same field of endeavor. And in Carreras, I mean, it
21 talks about doing it in silk screening, or in measuring one particular spot of
22 an electric circuit board to make sure whatever deposited there was a big
23 size, or know the size of it. And, again, we don't believe that someone is
24 going to look at that and say, oh that's a (INAUDIBLE) never is doing an air
25 gauge measurement to find, you know a nanometer level of topography, we
26 don't feel that those are the same -- and in terms of being in, solving the

1 same problem, which is a second prong of analogous art, we just don't feel
2 they're looking to solve the same problem because they don't have the same
3 problem. Being in the thickness measuring, and just measuring the thickness
4 of the coating, I mean, it's wide tolerance and it's using a deductive
5 measurement. It's not worried about exactly, you know, the nanometer level
6 features are and it's not going to be able to form that type of sensitive sensor.
7 And, in terms of Carreras, I mean, it has to predetermine its nozzle to
8 measure one area, and that problem wouldn't be there that you needed to
9 measure multiple sizes of areas, multiple sizes of devices that were
10 deposited. It's really geared towards measuring one place, one device you
11 pre-know, and it says it's required to know the area it's doing in order to get
12 the measurement so they only have to make one type of measurement for it.
13 So I think KSR, I don't think negates the fact you still have to be within the
14 same field of endeavor and have the same problem, and I don't think either
15 of these references, in view of the claimed invention -- I know the examiner
16 argument is that it's just whatever you disclose.

17 JUDGE THOMAS: Do you argue this point in the brief?

18 MR. EISENBERG: We do. Yes, we do. And we make this point
19 there as well, that several Court cases upheld, you have to look at the
20 claimed invention in order to determine what the field of endeavor is and
21 what the problems are. And the examiner is going back to the background
22 and he's looking just at general measuring. Well, we're not saying it's just
23 general measuring; we're really trying to claim that it's an air gauge measurer
24 and it's doing a specific type of scanning.

25 JUDGE THOMAS: I think we know the issue; you're just rearguing
26 everything you've already said, okay?

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1 MR. EISENBERG: Okay.

2 JUDGE THOMAS: Any other questions or comments from the
3 panel? Any other new comments?

4 MR. EISENBERG: No.

5 JUDGE THOMAS: Okay. Thank you very much.

6 MR. EISENBERG: Thank you very much.

7

8 (Whereupon, the proceedings concluded.)